What we claim is:

1. In a method for refining a geo-location estimate of a wireless transmitter emitting a signal that is received by a predetermined number of sensors that is greater than the minimum number of sensors required to obtain the geo-location estimate, wherein signals from the sensors used to estimate the location contain a bias error, the improvement comprising updating the geo-location estimate by recursive analysis of the bias error to thereby refine the geo-location estimate.

2. The method of Claim 1 wherein the predetermined number of sensors is four.

3. The method of Claim 1 wherein the received signals from the sensors are provided at a location estimation device.

4. The method of Claim 3 wherein the location estimation device determines the geo-location of the wireless transmitter by a method selected from the group consisting of time of arrival, time difference of arrival, frequency difference of arrival, and angle of arrival.

5. The method of Claim 3 wherein the location estimation device determines the geo-location of the wireless transmitter by a plurality of methods selected from the group consisting of time of arrival, time difference of arrival, frequency of arrival, and angle of arrival.

6. A method for estimating the geo-location of a wireless transmitter emitting a signal that is received by a plurality of sensors in a geo-location system which further includes a geo-location estimation device which provides an overdetermined geo-location solution for the wireless transmitter, comprising the steps of:

(a) at the sensors:

(i) measuring an attribute of the emitted signal to thereby create a sensor signal; and

(ii) sending the sensor signal to the geo-location estimation device;

(b) at the geo-location estimation device:

(i) receiving the plural sensor signals;

(ii) associating with each sensor signal a separate initial predetermined weight value to thereby provide a plurality of initial estimation signals;

(iii) determining an initial estimate of the geo-location of the wireless transmitter from the initial estimation signals;

(iv) modifying the weight value associated with the dominant sensor signals relative to the weight value associated with the non-dominant sensor signals to thereby provide a plurality of refined estimation signals;

(v) determining a refined estimate of the geo-location of the wireless transmitter from the refined estimation signals;

(vi) repeating steps (b)(iv) through (b)(v) a predetermined number of times to thereby estimate the geo-location of the wireless transmitter.

7. The method of Claim 6 wherein the plurality of sensors is at least four.

8. The method of Claim 6 wherein the attribute of the emitted signal is selected from the group consisting of time of arrival, frequency, phase, and angle of arrival.

9. The method of Claim 6 wherein for step (b)(ii) the determination of the initial predetermined weight values comprises the following steps:

(A) determining a theoretical geo-location of the wireless transmitter based on the plural sensor signals;

(B) determining for each one of the plural sensor signals the initial predetermined weight value as a function of the distance between the theoretical geo-location and the closest point of approach of a hypothetical curve based on said one plural sensor signal.

10. The method of Claim 6 wherein steps (b) (iv) through (b) (vi) are repeated until the change in the refined estimate of the geo-location of the wireless transmitter from the previous iteration is less than a predetermined amount.

11. The method of Claim 6 wherein the estimate of the geo-location of the wireless transmitter is determined by a method selected from the group consisting of time of arrival, time difference of arrival, frequency difference of arrival, and angle of arrival.

12. The method of Claim 6 wherein the estimate of the geo-location of the wireless transmitter is determined by a plurality of methods selected from the group consisting of time of arrival, time difference of arrival, frequency of arrival, and angle of arrival.

13. The method of Claim 6 wherein the predetermined weight value for each sensor signal is a function of a bias error for the sensor signal.

14. The method of Claim 13 wherein the bias error is a function of an instrumentation error.

15. The method of Claim 13 wherein the bias error for each sensor signal is a function of the receipt of a multi-path emitted signal at the sensor.

16. A method for estimating the geo-location of a wireless transmitter emitting a signal that is received by a plurality of sensors in a geo-location system which further includes a geo-location estimation device which provides an overdetermined geo-location solution for the wireless transmitter, comprising the steps of:

(a) providing a sensor signal for each of the plurality of sensors as a function of an attribute of the received signal at the respective sensor;

(b) providing an initial weight value for each sensor signal;

(c) estimating the initial geo-location of the wireless transmitter as a function of the sensor signals and the respective initial weight values;

(d) determining the offset of each sensor signal from the estimated initial geo-location;

(e) updating the weight value for at least one of the sensor signals as a function of the offset for the respective sensor signal;

(f) estimating the updated geo-location of the wireless transmitter as a function of the sensor signals and the respective updated weight values;

(g) determining the offset of each sensor signal from the updated geo-location;

(h) repeating steps (e) through (g) a predetermined number of times to thereby estimate the geo-location of the wireless transmitter.

17. The method of Claim 16 wherein the plurality of sensors is at least four.

18. The method of Claim 16 wherein the attribute of the emitted signal is selected from the group consisting of time of arrival, frequency, phase, and angle of arrival.

19. The method of Claim 16 wherein steps (e) through (g) are repeated until the change in the updated estimate of the geo-location of the wireless transmitter from the previous iteration is less than a predetermined amount.

20. The method of Claim 16 wherein steps (e) through (g) are repeated until the change in the updated weight values from the previous iteration is less than a predetermined amount.

21. The method of Claim 16 wherein the estimate of the geo-location of the wireless transmitter is determined by a method selected from the group consisting of time of arrival, time difference of arrival, frequency difference of arrival, and angle of arrival.

22. The method of Claim 16 wherein the estimate of the geo-location of the wireless transmitter is determined by a plurality of methods selected from the group consisting of time of arrival, time difference of arrival, frequency of arrival, and angle of arrival.

23. The method of Claim 16 wherein the predetermined weight value for each sensor signal is a function of a bias error for the sensor signal.

24. The method of Claim 23 wherein the bias error is a function of an instrumentation error.

25. The method of Claim 23 wherein the bias error for each sensor signal is a function of the receipt of a multi-path emitted signal at the sensor.

26. The method of Claim 16 wherein the initial weight values are expressed in a matrix.

27. The method of Claim 26 wherein the initial geo-location estimate is also a function of the location of the plurality of sensors.

28. The method of Claim 26 wherein the step of updating the weight value matrix in step (e) is also a function of the location of the plurality of sensors.

29. A method for estimating the geo-location of a wireless transmitter emitting a signal that is received by a plurality of sensors in a geo-location system which further includes a geo-location estimation device which provides an overdetermined geo-location solution for the wireless transmitter as a function of sensor signals determined from an attribute of the received signal at the plurality of sensors, comprising the steps of:

(a) assigning a weight value for each sensor signal;

(b) estimating the geo-location of the wireless transmitter as a function of the sensor signals and the weight values assigned to the sensor signals;

(c) determining the offset of each received signal from the estimated geo-location;

(d) updating the weight value for at least one of the sensor signals as a function of the offset for the respective sensor signal;

(e) repeating steps (b) through (d) a predetermined number of times to thereby estimate the geo-location of the wireless transmitter.

30. The method of Claim 29 wherein the plurality of sensors is at least four.

31. The method of Claim 29 wherein the attribute of the emitted signal is selected from the group consisting of time of arrival, frequency, phase, and angle of arrival.

32. The method of Claim 29 wherein steps (b) through (d) are repeated until the change in the estimate of the geo-location of the wireless transmitter from the previous iteration is less than a predetermined amount.

33. The method of Claim 29 wherein steps (b) through (d) are repeated until the change in the weight values from the previous iteration is less than a predetermined amount.

34. The method of Claim 29 wherein the estimate of the geo-location of the wireless transmitter is determined by a method selected from the group consisting of time of arrival, time difference of arrival, frequency difference of arrival, and angle of arrival.

35. The method of Claim 29 wherein the estimate of the geo-location of the wireless transmitter is determined by a plurality of methods selected from the group consisting of time of arrival, time difference of arrival, frequency of arrival, and angle of arrival.

36. The method of Claim 29 wherein the weight value for each sensor signal is a function of a bias error for the sensor signal.

37. The method of Claim 36 wherein the bias error is a function of an instrumentation error.

38. The method of Claim 36 wherein the bias error for each sensor signal is a function of the receipt of a multi-path emitted signal at the sensor.

39. The method of Claim 29 wherein the weight values are expressed in a matrix.

40. The method of Claim 39 wherein the geo-location estimate is also a function of the location of the plurality of sensors.

41. The method of Claim 39 wherein the step of updating the weight value matrix in step (e) is also a function of the location of the plurality of sensors.

42. A system for estimating the geo-location of a wireless transmitter emitting a signal that is received by a plurality of sensors in a geo-location system which further includes a geo-location estimation device which provides an overdetermined geo-location solution for the wireless transmitter as a function of sensor signals determined from an attribute of the received signal at the plurality of sensors, comprising:

(a) means for assigning a weight value for each sensor signal;

(b) means for estimating the geo-location of the wireless transmitter as a function of the sensor signals and the weight values assigned to the sensor signals;

(c) means for determining the offset of each received signal from the estimated geo-location;

(d) means for updating the weight value for at least one of the sensor signals as a function of the offset for the respective sensor signal;

(e) means for repeating steps (b) through (d) a predetermined number of times to thereby estimate the geo-location of the wireless transmitter.

43. The system of Claim 42 wherein the plurality of sensors is at least four.

44. The system of Claim 42 wherein the attribute of the emitted signal is selected from the group consisting of time of arrival, frequency, phase, and angle of arrival.

45. The system of Claim 42 wherein steps (b) through (d) are repeated until the change in the estimate of the geo-location of the wireless transmitter from the previous iteration is less than a predetermined amount.

46. The system of Claim 42 wherein steps (b) through (d) are repeated until the change in the weight values from the previous iteration is less than a predetermined amount.

47. The system of Claim 42 wherein the estimate of the geo-location of the wireless transmitter is determined by a method selected from the group consisting of time of arrival, time difference of arrival, frequency difference of arrival, and angle of arrival.

48. The system of Claim 42 wherein the estimate of the geo-location of the wireless transmitter is determined by a plurality of methods selected from the group consisting of time of arrival, time difference of arrival, frequency of arrival, and angle of arrival.

49. The system of Claim 42 wherein the weight value for each sensor signal is a function of a bias error for the sensor signal.

50. The system of Claim 49 wherein the bias error is a function of an instrumentation error.

51. The system of Claim 49 wherein the bias error for each sensor signal is a function of the receipt of a multi-path emitted signal at the sensor.

52. The system of Claim 42 wherein the weight values are expressed in a matrix.

53. The system of Claim 52 wherein the geo-location estimate is also a function of the location of the plurality of sensors.

54. The system of Claim 52 wherein the step of updating the weight value matrix in step (e) is also a function of the location of the plurality of sensors.

55. In a method for identifying bias measurements in a geo-location estimate of a wireless transmitter emitting a signal that is received by a predetermined number of sensors that is greater than the minimum number of sensors required to obtain the geo-location estimate, wherein measurements from the sensors used to estimate the location contain a bias error, the improvement comprising updating the geo-location estimate by recursive analysis of the bias error to thereby identify bias measurements.

56. The method of Claim 23 wherein the bias error for each sensor signal is a function of the RF propagation channel between the transmitter and the sensors.

57. The method of Claim 13 wherein the bias error for each sensor signal is a function of the RF propagation channel between the transmitter and the sensors.